



El Camino College
COURSE OUTLINE OF RECORD – Official

Subject:	AHSD
Course Number:	516
Descriptive Title:	High School Integrated Math 1
Division:	Library, Academic Support, and Noncredit
Department:	Adult High School Diploma
Course Disciplines:	Adult High School Diploma
Catalog Description:	This noncredit high school level course introduces integrated concepts in algebra, geometry, and statistics. Topics include equations and inequalities, functions, systems of equations, radicals and exponential relationships, data analysis and interpretation, geometric transformations, congruence, geometric measurement, and basic proof. The course emphasizes mathematical reasoning, problem solving, and connections among algebraic, geometric, and statistical concepts. This course supports students in progressing toward completion of a high school diploma or equivalent. Students may earn 1–10 high school credits through 15-hour instructional modules.
Prerequisite:	
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	.83 to 8.33
Hours Laboratory (per week):	0
Outside Study Hours:	1.66 to 16.66
Total Course Hours:	15 to 150
Course Units:	0
Grading Method:	Pass/No Pass/SP
Credit Status:	Noncredit
Transfer CSU:	No
Effective Date:	
Transfer UC:	No
Effective Date:	
General Education ECC:	
Term:	
Other:	
CSU GE:	
Term:	

Other:	
IGETC:	
Term:	
Other:	
Cal-GETC:	
Term:	
Other:	
Student Learning Outcomes:	Upon completion of the course, students will be able to: 1. solve and interpret algebraic problems involving equations, inequalities, systems of equations, functions, radicals, and exponential relationships using symbolic, graphical, and numerical methods. 2. apply geometric reasoning to analyze and prove relationships among geometric figures, including transformations, congruence, angle relationships, and properties of triangles and parallelograms. 3. interpret and analyze quantitative data using statistical displays such as frequency tables, histograms, scatter plots, and box-and-whisker plots to draw and justify conclusions.
Course Objectives:	1. Create, solve, and reason with equations and inequalities. 2. Apply function notation and represent functions using tables, equations, and graphs. 3. Solve and explain systems of equations and inequalities by graphing, substitution, and elimination. 4. Simplify radicals, solve exponential equations, and compare linear and exponential functions. 5. Organize, interpret, and analyze data in displays such as frequency tables, histograms, scatter plots, and box and whisker plots. 6. Explore and perform translations, reflections, and rotations of geometric figures with emphasis on the rigid motion and congruence. 7. Find perimeter and area of parallelograms, triangles, trapezoids, rhombuses, and kites by applying formulas. 8. Measure segments, angles, and perform geometric constructions. 9. Examine inductive and deductive reasoning. 10. Write geometric and coordinate proofs using theorems, postulates, definitions, and algebraic properties. 11. Apply postulates and theorems to lines and angles in a plane. 12. Prove congruency using definitions and theorems of triangles. 13. Classify special parallelograms by applying the properties of parallel and perpendicular lines and coordinate geometry.

Major Topics:

- I. Algebraic Expressions and Linear Equations (lecture)
 - A. Properties of real numbers and order of operations
 - B. Simplifying algebraic expressions
 - C. Solving linear equations in one variable
 - D. Solving and graphing linear inequalities
 - E. Applications of equations and inequalities
- II. Linear Functions (lecture)
 - A. Concept and definition of a function
 - B. Function notation and evaluation
 - C. Representing linear functions with tables, graphs, and equations
 - D. Slope and rate of change
 - E. Interpreting linear functions in context
- III. Systems of Linear Equations and Inequalities (lecture)
 - A. Systems of linear equations in two variables
 - B. Solving systems by graphing
 - C. Solving systems using substitution
 - D. Solving systems using elimination
 - E. Interpreting solutions of systems in applied problems
- IV. Exponential Functions and Radicals (lecture)
 - A. Simplifying radical expressions
 - B. Operations with radicals
 - C. Introduction to exponential expressions and equations
 - D. Comparing linear and exponential growth
 - E. Applications of exponential relationships
- V. Data Analysis and Statistical Reasoning (lecture)
 - A. Organizing data in tables and frequency distributions
 - B. Creating and interpreting histograms
 - C. Scatter plots and identifying trends
 - D. Box-and-whisker plots and distribution
 - E. Interpreting and drawing conclusions from data
- VI. Geometric Transformations (lecture)
 - A. Translations in the coordinate plane
 - B. Reflections across lines
 - C. Rotations about a point
 - D. Rigid motions and preservation of distance and angle measure
 - E. Transformations and congruence
- VII. Congruence and Triangle Relationships (lecture)
 - A. Definition of congruent figures
 - B. Triangle congruence concepts
 - C. Using congruence to solve geometric problems
 - D. Applications of triangle properties
- VIII. Geometric Measurement (lecture)
 - A. Measuring segments and angles
 - B. Perimeter and area of triangles
 - C. Area of parallelograms
 - D. Area of trapezoids, rhombuses, and kites
 - E. Applications of geometric measurement formulas

	IX. Geometric Constructions (lecture) A. Basic constructions using compass and straightedge B. Constructing perpendicular and parallel lines C. Constructing angles and angle bisectors D. Constructing triangles and other geometric figures X. Reasoning and Proof (lecture) A. Inductive reasoning and pattern recognition B. Deductive reasoning C. Definitions, postulates, and theorems D. Writing geometric proofs E. Coordinate proofs using algebraic methods XI. Lines, Angles, and Quadrilaterals (lecture) A. Angle relationships (vertical, complementary, supplementary) B. Parallel lines cut by a transversal C. Properties of parallelograms D. Classification of special parallelograms E. Applications using coordinate geometry
Total Lecture Hours:	15 to 150
Total Laboratory Hours:	0
Total Hours:	15 to 150
A.1. Primary Methods of Evaluation (Part 1 - CCN courses only):	
Primary Method of Evaluation:	3) Skills demonstration
Typical Assignment Using Primary Method of Evaluation:	In this assignment, you will practice solving systems of equations and interpreting the meaning of the solution. - Solve the following system of equations by graphing. Graph both equations on the same coordinate plane and identify the point of intersection. $y=2x+1$ $y = 2x + 1$ $y=-x+7$ $y = -x + 7$ - Solve the same system using substitution. Show each step of your work. - Solve the system using elimination. Show each step clearly. - Write a short paragraph explaining: - What the solution to the system is - What the point of intersection represents - Why all three methods should produce the same solution - Create your own system of two linear equations that has a solution at the point (3, -2). Show how you know the point satisfies both equations.

Critical Thinking Assignment 1:	In this assignment, you will collect, organize, and interpret data. 1. Survey 10–15 people and ask them how many hours they spend using their phone each day. 2. Organize the data you collect into a frequency table. 3. Create the following displays using your data: ○ A histogram ○ A box-and-whisker plot 4. Write a short explanation (1–2 paragraphs) describing: ○ The range of the data ○ Any patterns or clusters you notice ○ Whether there are any outliers ○ What the data suggests about phone usage in your group 5. Based on your analysis, write two conclusions that could be drawn from the data.
Critical Thinking Assignment 2:	In this assignment, you will explore geometric transformations and area relationships. 1. On graph paper, draw triangle ABCABCABC with the following coordinates: ○ A (1,1) A (1,1) A (1,1) ○ B (5,1) B (5,1) B (5,1) ○ C (3,4) C (3,4) C (3,4) 2. Perform the following transformations and record the new coordinates: ○ Translate the triangle 3 units right and 2 units up ○ Reflect the triangle across the y-axis ○ Rotate the triangle 90° counterclockwise about the origin 3. Sketch each transformed triangle on the coordinate plane. 4. Calculate the area of the original triangle and compare it to the area of one of the transformed triangles. 5. Write a short explanation answering the following questions: ○ What happens to the size and shape of a figure after a rigid motion (translation, reflection, or rotation)? ○ How do transformations help us understand congruence?
Other Evaluation Methods:	Homework Problems, Objective Exam, Quizzes
If Other:	
Instructional Methods:	Demonstration, Discussion, Group Activities, Lecture
If other:	
Work Outside of Class:	Answer questions, Problem solving activity, Skill practice, Study
If Other:	

Up-To-Date Representative Texts:	Larson, Ron and Laurie Boswell. <i>Big Ideas Math: Integrated Mathematics I</i> . Big Ideas Learning, 2019. (Discipline Standard)
Alternative Texts:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite	
Category	
Requisite course:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching skill(s): Bold the requisite skill(s). if applicable	
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Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). if applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Matthew Kline
Date:	03/10/2026
Original Board Approval Date:	05/20/2026
Effective Term:	FA 2026